

# CONTENTS OF VOLUME 21

## Articles

ABADIR, KARIM M. The limiting distribution of the autocorrelation coefficient under a unit root .....	1058-1070
ANDERSON, T. W. Goodness of fit tests for spectral distributions ..	830-847
ANDERSSON, STEEN ARNE AND PERLMAN, MICHAEL D. Lattice models for conditional independence in a multivariate normal distribution .....	1318-1358
ARAS, GIRISH AND WOODROOFE, MICHAEL. Asymptotic expansions for the moments of a randomly stopped average .....	503-519
ASSAF, DAVID, POLLAK, MOSHE, RITOV, YA'ACOV AND YAKIR, BENJAMIN. Detecting a change of a normal mean by dynamic sampling with a probability bound on a false alarm ...	1155-1165
BARNDORFF-NIELSEN, O. E. AND BLÆSILD, P. Orthogeodesic models .....	1018-1039
BARRY, DANIEL. Testing for additivity of a regression function ..	235-254
BERAN, J., HAMPEL, F. AND KÜNSCH, H. Contrasts under long-range correlations .....	943-964
BERAN, RUDOLF. Probability-centered prediction regions .....	1967-1981
BJERVE, STEINAR AND DOKSUM, KJELL. Correlation curves: Measures of association as functions of covariate values .....	890-902
BLÆSILD, P. AND BARNDORFF-NIELSEN, O. E. Orthogeodesic models .....	1018-1039
BOLTHAUSEN, ERWIN AND GÖTZE, FRIEDRICH. The rate of convergence for multivariate sampling statistics .....	1692-1710
BOOTH, JAMES G. AND HALL, PETER. An improvement of the jackknife distribution function estimator .....	1476-1485
BOOTH, JAMES G. AND HALL, PETER. Bootstrap confidence regions for functional relationships in errors-in-variables models .....	1780-1791
BOOTH, JAMES G., HALL, PETER AND WOOD, ANDREW T. A. Balanced importance resampling for the bootstrap .....	286-298
BOSE, ARUP AND BOUKAI, BENZION. Sequential estimation results for a two-parameter exponential family of distributions .....	484-502
BOUKAI, BENZION AND BOSE, ARUP. Sequential estimation results for a two-parameter exponential family of distributions .....	484-502
BREIMAN, LEO, TSUR, YACOV AND ZEMEL, AMOS. On a simple estimation procedure for censored regression models with known error distributions .....	1711-1720
BROWN, LAWRENCE D. AND LIU, RICHARD C. Nonexistence of informative unbiased estimators in singular problems .....	1-13
BUTLER, R. W., DAVIES, P. L. AND JHUN, M. Asymptotics for the minimum covariance determinant estimator .....	1385-1400
CHAI, FENG-SHUN AND MAJUMDAR, DIBYEN. On the Yeh-Bradley conjecture on linear trend-free block designs .....	2087-2097

CHAN, K. S. Consistency and limiting distribution of the least squares estimator of a threshold autoregressive model . . . . .	520-533
CHEN, JIAHUA AND SHAO, JUN. Iterative weighted least squares estimators . . . . .	1071-1092
CHEN, SONG XI AND HALL, PETER. Smoothed empirical likelihood confidence intervals for quantiles . . . . .	1166-1181
CHU, C. K. AND WU, J. S. Kernel-type estimators of jump points and values of a regression function . . . . .	1545-1566
CLAYTON, MURRAY K. AND GILARDONI, GUSTAVO L. On reaching a consensus using DeGroot's iterative pooling . . . . .	391-401
COHEN, ARTHUR AND SACKROWITZ, H. B. Inadmissibility of Studentized tests for normal order restricted models . . . . .	746-752
COSTER, DANIEL C. Trend-free run orders of mixed-level fractional factorial designs . . . . .	2072-2086
COX, DENNIS D. An analysis of Bayesian inference for nonparametric regression . . . . .	903-923
CRITCHLEY, FRANK, MARRIOTT, PAUL AND SALMON, MARK. Preferred point geometry and statistical manifolds . . . . .	1197-1224
DAVIES, P. L. Aspects of robust linear regression . . . . .	1843-1899
DAVIES, P. L., JHUN, M. AND BUTLER, R. W. Asymptotics for the minimum covariance determinant estimator . . . . .	1385-1400
DAWID, A. P. AND LAURITZEN, S. L. Hyper Markov laws in the statistical analysis of decomposable graphical models . . . . .	1272-1317
DAWID, A. PHILIP AND WANG, JINGLONG. Fiducial prediction and semi-Bayesian inference . . . . .	1119-1138
DETTE, HOLGER. Elfving's theorem for $D$ -optimality. . . . .	753-766
DETTE, HOLGER. A note on $E$ -optimal designs for weighted polynomial regression . . . . .	767-771
DETTE, HOLGER AND STUDDEN, WILLIAM J. Geometry of $E$ -optimality . . . . .	416-433
DIACONIS, P. AND FREEDMAN, D. A. Nonparametric binary regression: A Bayesian approach . . . . .	2108-2137
DINWOODIE, I. H. Large deviations for censored data . . . . .	1608-1620
DOKSUM, KJELL AND BJERVE, STEINAR. Correlation curves: Measures of association as functions of covariate values . . . . .	890-902
DORFMAN, ALAN H. AND HALL, PETER. Estimators of the finite population distribution function using nonparametric regression . . . . .	1452-1475
DOSS, HANI AND LI, GANG. Generalized Pearson-Fisher chi-square goodness-of-fit tests, with applications to models with life history data . . . . .	772-797
EVANS, STEVEN N. AND SPEED, T. P. Invariants of some probability models used in phylogenetic inference . . . . .	355-377
FALK, M. AND MAROHN, F. Asymptotically optimal tests for conditional distributions . . . . .	45-60

FAN, JIANQING. Local linear regression smoothers and their minimax efficiencies .....	196-216
FAN, JIANQING. Adaptively local one-dimensional subproblems with application to a deconvolution problem .....	600-610
FAN, JIANQING AND TRUONG, YOUNG K. Nonparametric regression with errors in variables .....	1900-1925
FOSTER, DEAN P. AND GEORGE, EDWARD I. Estimation up to a change-point .....	625-644
FREEDMAN, D. A. AND DIACONIS, P. Nonparametric binary regression: A Bayesian approach .....	2108-2137
GASSIAT, E. Adaptive estimation in noncausal stationary AR processes .....	2022-2042
GEIGER, DAN AND PEARL, JUDEA. Logical and algorithmic properties of conditional independence and graphical models .....	2001-2021
GEORGE, EDWARD I. AND FOSTER, DEAN P. Estimation up to a change-point .....	625-644
GILARDONI, GUSTAVO L. AND CLAYTON, MURRAY K. On reaching a consensus using DeGroot's iterative pooling .....	391-401
GOLDSTEIN, LARRY AND MESSER, KAREN. A new class of kernels for nonparametric curve estimation .....	179-195
GOODALL, COLIN R. AND MARDIA, KANTI V. Multivariate aspects of shape theory .....	848-866
GÖTZE, FRIEDRICH AND BOLTHAUSEN, ERWIN. The rate of convergence for multivariate sampling statistics .....	1692-1710
GREENSHTEIN, E. A note on Bahadur's transitivity .....	2163-2167
GRÜBEL, RUDOLF AND PITTS, SUSAN M. Nonparametric estimation in renewal theory I: The empirical renewal function ....	1431-1451
GU, CHONG AND QIU, CHUNFU. Smoothing spline density estimation: Theory .....	217-234
GU, M. G. AND ZHANG, C.-H. Asymptotic properties of self-consistent estimators based on doubly censored data. ....	611-624
HALL, PETER. On plug-in rules for local smoothing of density estimators .....	694-710
HALL, PETER AND BOOTH, JAMES G. An improvement of the jackknife distribution function estimator .....	1476-1485
HALL, PETER AND BOOTH, JAMES G. Bootstrap confidence regions for functional relationships in errors-in-variables models ....	1780-1791
HALL, PETER AND CHEN, SONG XI. Smoothed empirical likelihood confidence intervals for quantiles .....	1166-1181
HALL, PETER AND DORFMAN, ALAN H. Estimators of the finite population distribution function using nonparametric regression .....	1452-1475
HALL, PETER, ICHIMURA, HIDEHIKO AND HÄRDLE, WOLFGANG. Optimal smoothing in single-index models .....	157-178

HALL, PETER AND LI, KER-CHAU. On almost linearity of low dimensional projections from high dimensional data . . . . .	867-889
HALL, PETER, WOOD, ANDREW T. A. AND BOOTH, JAMES G. Balanced importance resampling for the bootstrap . . . . .	286-298
HAMPEL, F., KÜNSCH, H. AND BERAN, J. Contrasts under long-range correlations . . . . .	943-964
HÄRDLE, W. AND MAMMEN, E. Comparing nonparametric versus parametric regression fits . . . . .	1926-1947
HÄRDLE, WOLFGANG, HALL, PETER AND ICHIMURA, HIDEHIKO. Optimal smoothing in single-index models . . . . .	157-178
HE, XUMING AND SIMPSON, DOUGLAS G. Lower bounds for contamination bias: Globally minimax versus locally linear estimation . . . . .	314-337
HORVÁTH, LAJOS. The maximum likelihood method for testing changes in the parameters of normal observations . . . . .	671-680
HSING, TAIEN. Extremal index estimation for a weakly dependent stationary sequence . . . . .	2043-2071
HUŠKOVÁ, MARIE AND JANSSEN, PAUL. Consistency of the generalized bootstrap for degenerate $U$ -statistics . . . . .	1811-1823
ICHIMURA, HIDEHIKO, HÄRDLE, WOLFGANG AND HALL, PETER. Optimal smoothing in single-index models . . . . .	157-178
JAMES, ALAN T. AND VENABLES, WILLIAM N. Matrix weighting of several regression coefficient vectors . . . . .	1093-1114
JANSSEN, PAUL AND HUŠKOVÁ, MARIE. Consistency of the generalized bootstrap for degenerate $U$ -statistics . . . . .	1811-1823
JHUN, M., BUTLER, R. W. AND DAVIES, P. L. Asymptotics for the minimum covariance determinant estimator . . . . .	1385-1400
JUNKER, BRIAN W. Conditional association, essential independence and monotone unidimensional item response models . .	1359-1378
KENDALL, DAVID G. AND LE, HUILING. The Riemannian structure of Euclidean shape spaces: A novel environment for statistics. .	1225-1271
KHMALADZE, E. V. Goodness of fit problem and scanning innovation martingales . . . . .	798-829
KIM, JOO HAN. Chi-square goodness-of-fit tests for randomly censored data . . . . .	1621-1639
KOO, JA-YONG. Optimal rates of convergence for nonparametric statistical inverse problems . . . . .	590-599
KOUL, HIRA L. AND SALEH, A. K. MD. E. $R$ -estimation of the parameters of autoregressive [AR( $p$ )] models . . . . .	534-551
KÜNSCH, H., BERAN, J. AND HAMPEL, F. Contrasts under long-range correlations . . . . .	943-964
KURIKI, SATOSHI. One-sided test for the equality of two covariance matrices . . . . .	1379-1384

- LAURITZEN, S. L. AND DAWID, A. P. Hyper Markov laws in the statistical analysis of decomposable graphical models . . . . . 1272-1317
- LE, HUILING AND KENDALL, DAVID G. The Riemannian structure of Euclidean shape spaces: A novel environment for statistics. 1225-1271
- LELE, CHITRA. Admissibility results in loss estimation . . . . . 378-390
- LESLIE, JULIAN AND VAN EEDEN, CONSTANCE. On a characterization of the exponential distribution based on a type 2 right censored sample . . . . . 1640-1647
- LI, GANG AND DOSS, HANI. Generalized Pearson-Fisher chi-square goodness-of-fit tests, with applications to models with life history data . . . . . 772-797
- LI, KER-CHAU AND HALL, PETER. On almost linearity of low dimensional projections from high dimensional data . . . . . 867-889
- LIU, RICHARD C. AND BROWN, LAWRENCE D. Nonexistence of informative unbiased estimators in singular problems . . . . . 1-13
- LO, ALBERT Y. A Bayesian bootstrap for censored data . . . . . 100-123
- LO, ALBERT Y. A Bayesian method for weighted sampling . . . . . 2138-2148
- LOW, MARK G. Renormalizing upper and lower bounds for integrated risk in the white noise model . . . . . 577-589
- LU, I-LI AND RICHARDS, DONALD. Random discriminants . . . . . 1982-2000
- MACNEILL, I. B. AND TANG, S. M. The effect of serial correlation on tests for parameter change at unknown time . . . . . 552-575
- MAGULURI, GANGAJI. Semiparametric estimation of association in a bivariate survival function . . . . . 1648-1662
- MAJUMDAR, DIBYEN AND CHAI, FENG-SHUN. On the Yeh-Bradley conjecture on linear trend-free block designs . . . . . 2087-2097
- MAMMEN, E. AND HÄRDLE, W. Comparing nonparametric versus parametric regression fits . . . . . 1926-1947
- MAMMEN, ENNO. Bootstrap and wild bootstrap for high dimensional linear models . . . . . 255-285
- MARDIA, KANTI V. AND GOODALL, COLIN R. Multivariate aspects of shape theory . . . . . 848-866
- MAROH, F. AND FALK, M. Asymptotically optimal tests for conditional distributions . . . . . 45-60
- MARONNA, RICARDO A. AND YOHAI, VICTOR J. Bias-robust estimates of regression based on projections . . . . . 965-990
- MARRIOTT, PAUL, SALMON, MARK AND CRITCHLEY, FRANK. Preferred point geometry and statistical manifolds . . . . . 1197-1224
- MARTIN, R. D. AND ZAMAR, RUBEN H. Bias robust estimation of scale . . . . . 991-1017
- MARTIN, R. DOUGLAS AND ZAMAR, RUBEN H. Efficiency-constrained bias-robust estimation of location . . . . . 338-354
- MASHAYEKHI, MOSTAFA. On equivariance and the compound decision problem . . . . . 736-745
- MATTNER, L. Some incomplete but boundedly complete location families . . . . . 2158-2162



MESSER, KAREN AND GOLDSTEIN, LARRY. A new class of kernels for nonparametric curve estimation . . . . .	179-195
MESSIG, MICHAEL A. AND STRAWDERMAN, WILLIAM E. Minimal sufficiency and completeness for dichotomous quantal response models . . . . .	2149-2157
MUKERJEE, HARI. Nearest neighbor regression with heavy-tailed errors . . . . .	681-693
MUKERJEE, HARI. An improved monotone conditional quantile estimator . . . . .	924-942
NEUHAUS, GEORG. Conditional rank tests for the two-sample problem under random censorship . . . . .	1760-1779
O'SULLIVAN, FINBARR. Nonparametric estimation in the Cox model . . . . .	124-145
PATIL, P. N. On the least squares cross-validation bandwidth in hazard rate estimation . . . . .	1792-1810
PEARL, JUDEA AND GEIGER, DAN. Logical and algorithmic properties of conditional independence and graphical models . . . . .	2001-2021
PERLMAN, MICHAEL D. AND ANDERSSON, STEEN ARNE. Lattice models for conditional independence in a multivariate normal distribution . . . . .	1318-1358
PFANZAGL, J. Incidental versus random nuisance parameters . . . . .	1663-1691
PITTS, SUSAN M. AND GRÜBEL, RUDOLF. Nonparametric estimation in renewal theory I: The empirical renewal function . . . . .	1431-1451
POLLAK, MOSHE, RITOV, YA'ACOV, YAKIR, BENJAMIN AND ASSAF, DAVID. Detecting a change of a normal mean by dynamic sampling with a probability bound on a false alarm . . . . .	1155-1165
PUKELSHEIM, FRIEDRICH AND STUDDEN, WILLIAM J. <i>E</i> -optimal designs for polynomial regression . . . . .	402-415
QIN, JING. Empirical likelihood in biased sample problems . . . . .	1182-1196
QIU, CHUNFU AND GU, CHONG. Smoothing spline density estimation: Theory . . . . .	217-234
RICHARDS, DONALD AND LU, I-LI. Random discriminants . . . . .	1982-2000
RITOV, YA'ACOV, YAKIR, BENJAMIN, ASSAF, DAVID AND POLLAK, MOSHE. Detecting a change of a normal mean by dynamic sampling with a probability bound on a false alarm . . . . .	1155-1165
ROSENBERGER, WILLIAM F. Asymptotic inference with response-adaptive treatment allocation designs . . . . .	2098-2107
SACKROWITZ, H. B. AND COHEN, ARTHUR. Inadmissibility of Studentized tests for normal order restricted models . . . . .	746-752
SALEH, A. K. MD. E. AND KOUL, HIRA L. <i>R</i> -estimation of the parameters of autoregressive [AR( <i>p</i> )] models . . . . .	534-551
SALMON, MARK, CRITCHLEY, FRANK AND MARRIOTT, PAUL. Preferred point geometry and statistical manifolds . . . . .	1197-1224
SASIENI, PETER. Some new estimators for Cox regression . . . . .	1721-1759
SCHICK, ANTON. On efficient estimation in regression models . . . . .	1486-1521

SCHUMACHER, PETER AND ZIDEK, JAMES V. Using prior information in designing intervention detection experiments . . . . .	447-463
SEIDENFELD, TEDDY AND WASSERMAN, LARRY. Dilation for sets of probabilities . . . . .	1139-1154
SHAO, JUN. Differentiability of statistical functionals and consistency of the jackknife . . . . .	61-75
SHAO, JUN AND CHEN, JIAHUA. Iterative weighted least squares estimators . . . . .	1071-1092
SIEGMUND, D. A sequential clinical trial for comparing three treatments . . . . .	464-483
SIEGMUND, DAVID AND ZHANG, HEPING. The expected number of local maxima of a random field and the volume of tubes . . . . .	1948-1966
SIMPSON, DOUGLAS G. AND HE, XUMING. Lower bounds for contamination bias: Globally minimax versus locally linear estimation . . . . .	314-337
SPEED, T. P. AND EVANS, STEVEN N. Invariants of some probability models used in phylogenetic inference . . . . .	355-377
SRIVASTAVA, M. S. AND WU, YANHONG. Comparison of EWMA, CUSUM and Shirayev-Roberts procedures for detecting a shift in the mean . . . . .	645-670
STEIN, MICHAEL L. Spline smoothing with an estimated order parameter . . . . .	1522-1544
STRAWDERMAN, WILLIAM E. AND MESSIG, MICHAEL A. Minimal sufficiency and completeness for dichotomous quantal response models . . . . .	2149-2157
STUDDEN, WILLIAM J. AND DETTE, HOLGER. Geometry of $E$ -optimality . . . . .	416-433
STUDDEN, WILLIAM J. AND PUKELSHEIM, FRIEDRICH. $E$ -optimal designs for polynomial regression . . . . .	402-415
STUTE, W. AND WANG, J.-L. The strong law under random censorship . . . . .	1591-1607
STUTE, WINFRIED. Almost sure representations of the product-limit estimator for truncated data . . . . .	146-156
TANG, DEI-IN. Minimax regression designs under uniform departure models . . . . .	434-446
TANG, S. M. AND MACNEILL, I. B. The effect of serial correlation on tests for parameter change at unknown time . . . . .	552-575
THOMPSON, G. L. Generalized permutation polytopes and exploratory graphical methods for ranked data . . . . .	1401-1430
TRAN, LANH TAT. Nonparametric function estimation for time series by local average estimators . . . . .	1040-1057
TRUONG, YOUNG K. AND FAN, JIANQING. Nonparametric regression with errors in variables . . . . .	1900-1925

- TSUR, YACOV, ZEMEL, AMOS AND BREIMAN, LEO. On a simple estimation procedure for censored regression models with known error distributions . . . . . 1711-1720
- VAN DE GEER, SARA. Hellinger-consistency of certain nonparametric maximum likelihood estimators . . . . . 14-44
- VAN EEDEN, CONSTANCE AND LESLIE, JULIAN. On a characterization of the exponential distribution based on a type 2 right censored sample . . . . . 1640-1647
- VENABLES, WILLIAM N. AND JAMES, ALAN T. Matrix weighting of several regression coefficient vectors . . . . . 1093-1114
- WANG, J.-L. AND STUTE, W. The strong law under random censorship . . . . . 1591-1607
- WANG, JINGLONG AND DAWID, A. PHILIP. Fiducial prediction and semi-Bayesian inference . . . . . 1119-1138
- WASSERMAN, LARRY AND SEIDENFELD, TEDDY. Dilation for sets of probabilities . . . . . 1139-1154
- WOOD, ANDREW T. A., BOOTH, JAMES G. AND HALL, PETER. Balanced importance resampling for the bootstrap . . . . . 286-298
- WOODROOFE, MICHAEL AND ARAS, GIRISH. Asymptotic expansions for the moments of a randomly stopped average. . . . . 503-519
- WU, J. S. AND CHU, C. K. Kernel-type estimators of jump points and values of a regression function . . . . . 1545-1566
- WU, YANHONG AND SRIVASTAVA, M. S. Comparison of EWMA, CUSUM and Shirayev-Roberts procedures for detecting a shift in the mean. . . . . 645-670
- YAKIR, BENJAMIN, ASSAF, DAVID, POLLAK, MOSHE AND RITOV, YA'ACOV. Detecting a change of a normal mean by dynamic sampling with a probability bound on a false alarm . . . . . 1155-1165
- YING, ZHILIANG. A large sample study of rank estimation for censored regression data . . . . . 76-99
- YING, ZHILIANG. Maximum likelihood estimation of parameters under a spatial sampling scheme . . . . . 1567-1590
- YOHAI, VICTOR J. AND MARONNA, RICARDO A. Bias-robust estimates of regression based on projections . . . . . 965-990
- YOHAI, VICTOR J. AND ZAMAR, RUBEN H. A minimax-bias property of the least  $\alpha$ -quantile estimates. . . . . 1824-1842
- YU, BIN. Density estimation in the  $L^\infty$  norm for dependent data with applications to the Gibbs sampler . . . . . 711-735
- ZAMAR, RUBEN H. AND MARTIN, R. D. Bias robust estimation of scale . . . . . 991-1017
- ZAMAR, RUBEN H. AND MARTIN, R. DOUGLAS. Efficiency-constrained bias-robust estimation of location. . . . . 338-354
- ZAMAR, RUBEN H. AND YOHAI, VICTOR J. A minimax-bias property of the least  $\alpha$ -quantile estimates. . . . . 1824-1842
- ZEMEL, AMOS, BREIMAN, LEO AND TSUR, YACOV. On a simple estimation procedure for censored regression models with known error distributions . . . . . 1711-1720



ZHANG, C.-H. AND GU, M. G. Asymptotic properties of self-consistent estimators based on doubly censored data . . . . .	611-624
ZHANG, HEPING AND SIEGMUND, DAVID. The expected number of local maxima of a random field and the volume of tubes . . . .	1948-1966
ZHANG, PING. Model selection via multifold cross validation . . . .	299-313
ZIDEK, JAMES V. AND SCHUMACHER, PETER. Using prior information in designing intervention detection experiments . . . . .	447-463

**Corrections**

HOSOYA, YUZO AND TANIGUCHI, MASANOBU. A central limit theorem for stationary processes and the parameter estimation of linear processes . . . . .	1115-1117
TANIGUCHI, MASANOBU AND HOSOYA, YUZO. A central limit theorem for stationary processes and the parameter estimation of linear processes . . . . .	1115-1117
WIJSMAN, ROBERT A. Proper action in steps, with application to density ratios of maximal invariants . . . . .	2168-2169